



Contribution ID: 807

Type: Poster

Soft and hard interactions in high multiplicity PP collisions at LHC energies

Wednesday 9 July 2025 18:00 (20 minutes)

Recent PP collisions at the highest available LHC energies (at 13 TeV CM energies) are performed with such a high luminosity, when the detected multiplicity dependence can be observed by high precision and its microscopical origin can be studied and discussed. Indeed, the measured hadron transverse momentum spectra differ at lower and higher final state multiplicities, which offers the opportunity of an extensive theoretical investigation of the applied microscopical models in the theoretical descriptions. We use PYTHIA 8 and EPOS 4 Monte Carlo models to reproduce the measured transverse momentum spectra and identify any observed differences. We plan to display our HIJING++ results, also. Our phenomenological analysis indicates a centre-of-mass energy invariance within the low- p_T part of the hadron spectra. This observation opens the way of studying high multiplicity PP collisions with methods applied in heavy ion collisions looking for the appearance of the quark-gluon plasma state.

Secondary track

T05 - QCD and Hadronic Physics

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